THESIS

A SIMULATED SITUATIONAL APTITUDE TEST OF LEADERSHIP AS A TOOL FOR SELECTION OF COMMISSIONED OFFICERS IN THE NAVY AND MARINE CORPS.

JAMES R. SCHOEN 1st Lt. U.S.M.C.

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A Thesis

Presented in Partial Fulfillment of the Requirements
for the Degree Master of Arts

By

JAMES RAYMOND SCHOEN, B.S.

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ACKNOWLEDGEMENTS

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CHAPTER I

BASIS FOR THE INSTRUMENT

Introduction

If an officer candidate has passed a physical examination and is able to present proof that he can successfully handle scholastic subjects either by passing a test or showing good school grades on his record, he is eligible for admission into the Naval Academy or N.R.O.T.C. In addition, if he comes from the enlisted file, he may be required to have exhibited promising military attributes on his job. These requirements, in essence, are all that are used in selecting officer candidates for the Navy or Marine Corps. It is submitted in the present study that these selection procedures are remiss in one vital requirement, that of demonstrated leadership aptitude. The Navy and Marine Corps are otherwise stressing the need for leadership among their commissioned officers. It is generally known that the primary products these services want from their officer candidate programs are leaders. They are getting good men with related attributes but none who have been measured and found, before selection for officer training, to have leadership

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aptitude.

Nor do the Navy and Marine Corps give leadership a prominent place among the evaluations made of the midshipmen once the aforementioned officer candidate programs are underway. The only attempt made during the programs to evaluate leadership is sporadic observation by superiors, and this is given only minor weighing in the final determination with scholastic achievement heading a list of related accomplishments.

Therefore, it is proposed that a valid and reliable measure of leadership would be most useful in the selection of leaders for the Navy and Marine Corps. The present study will be devoted to the construction of an instrument to implement such a proposal.

Statement of the Problem

The purpose of this study is to construct a paper-pencil test capable of measuring leadership aptitude in the N.R.O.T.C. midshipmen. In addition, it is intended to establish some criteria of leadership and compare the test with these criteria.

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in the selection of leaders. Mandell (14) advocates a different approach than is presently in use for the selection of leaders in industry and government as well as the armed forces, and he estimates there are 2,000,000 who are required to exercise administrative or supervisory leadership. Freeman and Taylor (7) reason that intelligence testing as it is now, is good for predicting material endowments of intelligence which as a hurdle potential leaders must cross. They point out, however, that for picking aptitude for leadership intelligence testing has no bearing and is therefore only partially effective in the selection of leaders. They note that:

> " 1. Leaders must have intellectual ability sufficient to cope with the problems they are required to solve, and 2. intellectual ability is far from all it takes to make a successful business leader ... Does ability to judge the correct thing required in an interpersonal situation predict executive success? Logically this should be the most relevant of all the proposed special intellectual aptitudes."

Meier (15) holds this same view and his study of the selection of R.O.T.C. candidates at Harvard, where an attempt was made to use leadership aptitude as a basis for selection, shows that interviews, apparatus tests, and rating scales contained certain invalidating faults that made them impractical. He proposes a paper-pencil test of military adaptability which simulates combat conditions.

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Many other measures of leadership aptitude have been suggested, among them sociodrama, leaderless group techniques, stress interviews, and frustration tolerance techniques. (3), (4), (16). The Navy and Marine Corps have problems of great numbers, necessary standardization of instruments, minimum expenditures, and minimum time in emergencies. Whether the aforementioned types of leadership aptitude measures could be used successfully with large numbers, and at a minimum of cost and time is extremely doubtful. Sociometric ratings have also proven successful in many instances and have been proposed for selection purposes. One fault, their personal nature, which smacks too much of democracy in the military has not hastened their adoption. The various techniques just mentioned, then, appear to be unsuitable for measurement of leadership aptitude if applied to the military. However, a paper-pencil test, if validated, would seem to be the answer to the special problems faced by the Navy and Marine Corps. A paper-pencil test could be standardized and still be administered to great numbers at different locations and times. It would cost comparatively little and be easy and quick to administer. Further, it would not conflict with custom or tradition but would, in fact, resemble procedures in the past

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when the military has fallen back on paper-pencil tests in other testing situations.

History of Leadership Testing

There have been few efforts made to isolate the elusive quality, leadership, and test for it. As one writer put it:

> "This field is approached by many psychometricians with a feeling of defeatism since there has been little success in it. They tend to stay away from this type of testing because of the complex intellectual and tempermental qualities involved." (14)

As far back as 1930, however, one pioneer study by Beckman and Levine (1) reported that in a search for tests to discover executive aptitude for the selection of officials in the city government of Cincinnati, the Allport Ascendency-Submission Test, Laird Introversion-Extroversion Test, and a simple follow direction test were used. In the opinion of the researchers only the first had any promise but a suggested adaptation of it never materialized. Eaton (3) reviews another attempt, one by the British and American Armies in World War II to establish criteria as a beginning in testing for leadership. At the end the two separate studies arrived at opposite poles in their thinking; one believing that leadership was a cooperative function, the other maintaining it was an initiating function on the part

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of one individual. The studies were abandoned.

Since the war, attempts at leadership testing have been more numerous. "How Supervise?", a simulated situational questionnaire for selection of supervisors was based on human relations and facts which it was felt a supervisor needed in handling men. It was thought to be a valid instrument by its author (5), but others (20) (14) have questioned its validity.

Sanford and Hemphill constructed one test for use in determining Naval leadership (19) but it did not prove to be successful.* Fearnow (4) adapted this test and tried it out on the N.R.O.T.C. midshipmen at Ohio State University. He found it to be an unsatisfactory measure of military leadership potentialities but pointed out this may have been due to: 1. Situations not clear enough, 2. Items answered in what was thought to be the approved Navy way. The present writer feels that the extreme shortness of the Sanford-Hemphill test (only 21 questions) and inappropriateness of the basic leadership dimensions used may also have been contributing factors.

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others that have been made have never gained universal recognition as being valid. It is the opinion of this writer that the reason for such lack of validity is due to the fact that leadership in the earlier studies had not been accurately or truly defined and that its critical elements had not been isolated. Since the dimensions of leadership were not known, and since it was not known what a man had to have in order to be a leader, it is little wonder that an adequate test for leadership could not be constructed.

What is Leadership?

Until recently, leadership had usually been thought of as a specific attribute of personality or a group of traits that some persons possess and others do not. Such an assumption of specificity has been an important underlying reason for the failure of so many leadership studies. Reviews by Otis (17) and Stogdill (22) have pointed out the diversity and quantity of traits which have been claimed to typify leadership. Moreover, traits found to characterize leaders in one study were often found to characterize non-leaders in another study. The Personnel Research Board at Ohio State University which has been working on the study of leadership for over five years has rejected the trait approach to leadership. Fleishman (6) summarizes and

study of leadership for over five years has subjected the work approach to leadership. Fleishman (6) summarizes and at Ohio State University which has been working on the non-leadership in another study. The Personnel Research Board quoted in Gibb (12) has also pointed out the difficulty in defining and studying the concept of leadership. Since the dimensions of leadership were not known, and since it was not known what a man had to have in order to be a leader, it is little wonder that an adequate test for leadership could not be constructed. Why is leadership?

Until recently, leadership had usually been thought of as a specific attribute of personality or a group of traits that some persons possess and others do not. Even as recently as a quarter of a century ago, the importance of situation for the failure of so many leadership studies, as shown by Gibb (17) and Stogdill (28) have pointed out the diversity and quantity of traits which have been claimed to typify leadership. Moreover, traits found to characterize leaders in one study were often found to characterize non-leaders in another study. The Personnel Research Board at Ohio State University which has been working on the

attempts to prove this contention.

Otis made a complete review of all accumulated data on the scope and function of the jobs of company grade officers on duty with troops. He also analyzed 283 periodical and textbook sources and found:

> ".... little agreement in the technical literature in defining leadership. There have been such approaches as (a) defining it in terms of traits possessed by an individual, (b) defining it in terms of characteristics or traits of those being led, and (c) considering leadership as a function of the individual, the followers, and the situation ... For example, if one adhered to the leader trait theory, (a) he would assume that if the commanding officer of Company A possessed the trait "initiative" or "trustworthiness", or any or all of the other postulated traits, he would also make a good commander of Company B or Company C. Conversely, if the company commander of Company C did not possess these traits (and thus was judged to be a poor leader) he would also be a poor commander of Company K ... If one subscribed to the second definition of leadership, (b), he would have to assume that almost anybody could lead men if these men had a need to be or were predisposed to being led. The third definition, (c), tends to de-emphasize the leader and to stress the situation. If the situation makes the leader, then in order to have a good leader in command of a platoon or company at all times, one may find it necessary to change commanders at the approach of each new general situation. On an a priori basis each of these three definitions by themselves seems inadequate. Therefore, for the purposes of this study: - Leadership shall be defined as the functional and dynamic interrelationship between the leader and those being led in given situations. These relationships must include the characteristics of the leader and the followers, as well as of the situations in which they find themselves." (17)

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The present writer accepts the above definition of leadership as do in its essence many of the very recent authoritative studies. Hemphill similarly concludes, "... that a definition of leadership must include the characteristics of the social situation and the characteristics of an individual." (9) Other studies making similar conclusions are those of Gibb (8), Pigors (18), Coffin (2), and Jenkins (12).

The Development of Critical Dimensions of Leadership

As Shartle reports (21) the leadership studies of the Personnel Research Board attempted to determine how the leader performs his role as contrasted to what activities he performs. In one study he reports that 1800 specific statements of leader behavior were collected. From an analysis of these statements nine dimensions of leader behavior were developed. Further evaluation by 357 persons combined and reduced this number to three. (11) In a later study reported by Hemphill (10) a factor analysis was made of a questionnaire given to 300 Air Force crew members who described their airplane commander. Using the earlier study to classify the results, four revised dimensions of leadership were found. They were:

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1. Consideration

2. Initiating Structure

3. Production Emphasis

4. Social Sensitivity

Fleishman (6) took these dimensions and constructed another questionnaire for use with supervisors in an industrial situation. In his pilot study, Fleishman found that items 3 and 4 were so heavily loaded with "consideration" and "initiating structure" factors that they could be eliminated. The two remaining dimensions were found in his later "Industrial Study" to be quite independent and discriminate. The two remaining factors were:

> "1. Consideration: this factor represents the extent to which the leader is considerate of the feelings of those under him. It is the 'nice fellow' dimension. It comes closest to representing the human relations approach toward group members.
>
> "2. Initiating Structure: this factor contains items that reflect the extent to which the leader restricts or facilitates the interactions of group members toward goal attainment. He does this by planning, communicating, scheduling, trying out new ideas, and similar activities." (6)

Langendorf applies the same two dimensions more simply stated, to a company commander's job in the Army. "A company commander's job is to integrate the personal objectives of the men with the objectives of the organization."(13)

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A recent study of the Personnel Research Board further defines the latter dimension: "Structure-in-interaction is a consistency in behavior occurring during interaction which permits the prediction of future interacting behavior with an accuracy exceeding chance ... Let us suppose that ... (an individual) ... introduces consistency in his behavior with acts which suggest the form of their subsequent interacting. He may be perceived as the initiator of structures-in-interaction ... A leader can be designated as an individual who has the role of initiating structure in interaction." (10) The same study also verified that the two dimensions, "consideration" and "initiating structure," accounted for approximately 85 per cent of the common factor variance of the 130 items in the previous study of behaviors of airplane commanders, and that they were relatively independent.

From these studies, then, it can be seen that leadership has, at least tentatively, been defined, and that two vital dimensions of what a leader has to have have been isolated. Further, these two dimensions, "consideration" and "initiating structure" were present in a vast majority of the typical leader behaviors analyzed among airplane commanders and industrial supervisors. From this it might

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be inferred that "consideration" and "initiating structure" are general dimensions of leadership. It might also be inferred that a test built around social situations in the military and using these two dimensions to evaluate an individual's behavior in those situations would be, in effect, a measure of leadership.

An Hypothesis

For the present study it is hypothesized from the preceding inferrences that a critical incident of leadership, capable of being tested, is the proper balance the leader holds in making his decisions between "consideration" and "initiating structure," i.e., between consideration for the feelings, integrity, and person of his men and the systematic and organized manner in which he performs his mission. It is the purpose of the present study to construct a paper-pencil test capable of determining the extent to which an individual possesses or is able to hold this critical balance.

It is also intended that the test to be constructed, simulate real life situations as nearly as possible. From the definition of leadership previously stated it can be seen that the situation is a crucial factor. Hemphill (9) supports this view by stating:

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An Hypothesis

For the present study it is hypothesized from the preceding inference that a critical incident of leadership, capable of being tested, is the proper balance the leader finds in making his decisions between "consideration" and "initiating structure," i.e., between consideration for the feelings, integrity, and person of his men and the systematic and organized manner in which he performs his mission. It is the purpose of the present study to construct a paper-pencil test capable of determining the extent to which an individual possesses or is able to hold this critical balance.

It is also intended that the test to be constructed, be informed that "consideration" and "initiating structure" are general dimensions of leadership. It might also be inferred that a test built around social situations in the military and using these two dimensions to evaluate an individual's behavior in these situations would be, in effect, a measure of leadership.

"In the evaluation of leadership the characteristics of the situation set the qualitative standard for a leader's behavior .... Leadership is the behavior of an individual directing group activities and adequacy of leadership is an evaluation of the correspondence between the individual's behavior and the behavior demanded by the situation."

Plan of Procedure

In the construction and analysis of the test with which the present study is concerned, the following procedure was adhered to:

1. Construction of the test items.
2. Submission of items to a group of military judges for criticism and refinement.
3. Revision and consolidation of items to form the test.
4. Administration to a sample composed of the senior class of N.R.O.T.C. midshipmen at Ohio State University.
5. Scoring by judges.
6. Establishing criteria of leadership.
7. Comparison of the test with criteria.
8. Analysis of results.

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CHAPTER II

CONSTRUCTION, ADMINISTRATION, AND SCORING OF THE INSTRUMENT

The Test Items

A copy of the test constructed for the present study is exhibited in Appendix 1. Each of its items are based on two factors proposed by the Ohio State University personnel Research Board and defined in Chapter I of the present study. The factors are:

1. "Initiation of structure in interaction"
2. "Consideration"

The factor, "initiation of structure in interaction," is characterized (10) by leader behaviors such as:

1. Asking crew members to follow standard practice.
2. Maintaining definite standards of performance.
3. Making sure his part in the crew is understood.
4. Trying out his new ideas on the crew.

The factor, "consideration," is characterized (10) by leader behaviors concerned with social problems of the love and affection, security, and prestige variety such as:

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The factor, "initiation of structure in interaction," is characterized (IO) by leader behavior such as:

1. Asking crew members to follow standard practice.
2. Maintaining definite standards of performance.
3. Making sure his part in the crew is understood.
4. Trying out his new ideas on the crew.

The factor, "consideration," is characterized (IO) by leader behavior concerned with social problems of the love and affection, security, and prestige variety such as:

1. Doing personal favors for crew members.
2. Looking out for the personal welfare of crew members.
3. Not refusing to explain his actions.
4. Treating crew members like his equals.
5. Being friendly and approachable.

These behaviors were found to be significant for leadership by the Personnel Research Board. (10) In construction situational items for the present study, these behaviors were adapted to Naval and Marine situations along with others gathered from a revised 80 item questionnaire used by the Personnel Research Board to obtain leader behavior descriptions.

From the outset it was decided to build each test item around the decision a leader would have to make in a Naval or Marine situation. Therefore, each of the situations as they were adapted from the leader behavior descriptions were phrased so as to require a decision on the part of the person being examined. For instance, the leader behavior description, "treating crew members like his equals," was formed into a situation such as:

> There is a long line of enlisted men at the cigarette counter in the Navy Exchange. What should you do?

1. Doing personal favors for crew members.

2. Looking out for the personal welfare of crew members.

3. Not refusing to explain his actions.

4. Treating crew members like his equals.

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There is a long line of enlisted men at the cigarette counter in the Navy Exchange. What should you do?

The person answering the item would have to decide whether he was going to take the "considerate" action and get in line or reject it and go to the head of the line. Instead of restricting the items to essay type answers, however, it was decided that two possible answers to each situation, the one "considerate" to an extreme, the other an extreme "initiating of structure"(hereinafter also referred to as "authoritarian"), would be inserted after each situation. This was intended to lead the already "considerate" minded or "authoritarian" minded person into exemplifying his inclination. A third alternative to the solution of the situation was to be a blank space entitled "other" wherein the person answering the question could write in whatever he thought was a better solution. For example:

> 27. During a slack period that appears indefinite, your men have nothing to do. Should you:
>
> _____ let them lie around and do nothing all day if they want to.
>
> _____ make up some kind of "busy work" to keep them on the job.
>
> OTHER:

The two printed answers were purposely intended to represent decisions as far to each extreme as possible in keeping with plausibility. This was to leave plenty of leeway for the discriminating person to expound his own solution but still make certain the "considerate" or "authoritarian"

but still make certain the "comaderate" or "antbeatitian" for the discriminating person to expound his own solution ing with plausibility. This was to leave plenty of leeway most decisions as far to each extreme as possible in keep-

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OTHER:

_____ keep them on the job.

_____ make up some kind of "busy work" to

_____ let them lie around and do nothing all day if they want to.

Now

Suppose a minor period that appears later. Suppose, for instance, your men have nothing to do. Should

47. Having a minor period that appears later, thought was a better solution. The example: Person answering the question could write in whatever he didn't was to be a blank space entitled "other" showing the additions. A third alternative to the solution of the situation "antbeatitian" minded persons into complicating his in- tion was intended to load the already "comaderate" minded or "antbeatitian" minded "busy") would be inserted after each situation. "Initiating of measures"(benefactor also referred to as the one "comaderate" to as extreme, the other an extreme

inclined examinee would be forced to reveal his bent.

There were two aspects of the mechanical construction of the aforementioned item type that caused the writer some apprehension. One was the fear that the students being unused to this type of item might take the simplest road out by simply checking most of the answers. In some instances this appeared to be the case. However, in the final analysis of the returns it was found that 620 out of a total of 1400 items, over 44 per cent, were answered by written-in answers under the "Other" category, rather than checked, as described in the above example. The second danger, that some students might "catch on" to the continual misleading printed answers was partially compensated for by interspersing several decoy questions in which the printed answers were the more obvious solutions.

Role of the Judges

Sixteen judges were used at two points in the study. There were twelve regular Naval and Marine Corps officers and four regular Army officers. They were used in the role of military experts. They ranged in rank from First Lieutenant to Lieutenant Colonel and in amount of commissioned service on active duty from six and one-half years to nineteen years. They might further be described by mentioning that

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they were all enrolled in postgraduate personnel administration and training at Ohio State University. This provided some common bases of understanding of the problems involved in their role.

After a brief explanation of this study and a definition of terms, the original 67 items were submitted to the judges with instructions for them to indicate which were the best for the purpose intended. Thus each item was looked at by from six to eight judges and by their concensus the best 40 were chosen. These were then re-edited and in some cases rewritten according to suggestions received from the judges. To these 40 re-edited items were added five decoys, the purpose of which has been described, to make up the complete simulated leadership aptitude test used in the present study.

At a later point, the scoring of the test, the same judges were employed in a manner to be described shortly.

The Sample

The senior class of 38 midshipmen of the N.R.O.T.C. at Ohio State University comprised the sample who were to take the test. These students were pre-selected for the N.R.O.T.C. upon consideration of their high school grades, physical qualifications, Officer's Qualification Test Scores, and

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findings of appointing boards. They had completed three years of N.R.O.T.C. work already and were therefore considered to be potential, satisfactory, commissioned officer material. They had had some leadership instruction and a common background of Naval terminology. Any test on such a selected group might not be as discriminating an instrument as one on a random sample of applicants for Naval Officer candidate programs.

The test was administered to the midshipmen in two groups under identical conditions during two regularly scheduled classes one morning. A fifty minute period was allotted. First a sociometric rating blank (example exhibited in Appendix 2) was passed out to be used in later analysis of the results. At the end of three minutes time was called, and the rest of the period was given to the leadership test. All but four students finished the test in the allotted time. These four papers were considered the same as the others in the scoring and were thus penalized for taking too much time to reach their decisions. Two absentees and lack of criterion data in one case reduced the final number of usable cases to 35.

Scoring the Test

It was decided to score the test in two ways. First

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to give credit for good leadership solutions by means of a "quality" score. This was to be a measure of the ability of the midshipman to devise good decisions from the given situations. The second was to score the "bent" of the midshipman toward either "consideration" or "initiating structure." This was to be a measure of the extent to which the midshipman had conceptualized the role of a leader to be predominantly "considerate," "authoritarian," or perhaps "middle of the road."

The printed answers that had been indicated by checkmarks were self scoring. No "quality" credits could be given since neither answer was supposed to be a good one in itself. "Bent" credits were assigned to "considerate" or "authoritarian" according to which extreme had been checked.

All "other" items or those in which the midshipman had written his own solution or a modification, however brief, were submitted to the judges for scoring. Each answered item was scored by six judges who indicated their "quality" credit and "bent" credit by symbols in little boxes drawn for that purpose right on each test. The meanings of the terms used for the scoring were again explained and the following written instructions given to each judge:

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"quality" score. This was to be a measure of the ability

to give credit for good leadership solutions in terms of a

"Categories for Marking Exams

Quality

G. An answer which represents a good solution exemplary of good leadership.
SS. An answer which represents a temporary solution to the problem, i.e., one which is neither outright "good" nor poor.
P. An answer which represents a poor or unworkable solution, i.e., one no better than one of the printed ones.

Bent

A. Too "authoritarian," i.e., too structured toward the military.
C. Too "considerate."
MR. A "middle of the road" solution designed to satisfy both the men and the mission."

On 536 of the answered items the judges agreed six to nothing as to which category the answer belonged. On 350 answers there was 5 - 1 agreement; on 203 answers there was 4 - 2 agreement; and on 150 answers there was a 3 - 3 split. These 150 answers were either given an interpolative value if possible or resubmitted to the entire 16 judge panel. Analysis at this point showed there was approximately 81 per cent agreement among the judges as to the scoring of written-in items.

Values were assigned to item credits as follows:

"Quality" scores
good, "G", answers ..... 4 points
so-so, "SS", answers ..... 2 points
poor, "P", answers ..... 0 points

"Categories for Judging Items"

Quality

G. An answer which represents a good solution summary of good leadership.

SG. An answer which represents a temporary solution to the problem, i.e., one which is neither outright "good" nor "poor."

P. An answer which represents a poor or unworkable solution, i.e., one no better than one of the printed ones.

Best

A. Too "authoritarian," i.e., too structured towards the military.

C. Too "considerate."

MA. A "middle of the road" solution designed to satisfy both the man and the mission."

On 336 of the answered items the judges agreed six to nothing as to which category the answer belonged. On 326 answers there was 5 - 1 agreement; on 203 answers there was 4 - 2 agreement; and on 130 answers there was a 3 - 3 split.

These 130 answers were either given an interpolative value if possible or resubmitted to the entire 16 judge panel.

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"quality" scores

good, "G", answers ..... 4 points

so-so, "SG", answers ..... 2 points

poor, "P", answers ..... 0 points

"Bent" scores

"considerate," "C", answers ..... -2 points
"Authoritarian," "A", answers ..... +2 points
"middle of the road," "MR", answers .... 0 points

The Sociometric Scale

This scale (Appendix 2) consisted of two parts, unknown to the midshipman, one of a mere friendship pattern, the other of a leadership pattern. Values were assigned, three points for a first place mention, two points for a second place mention, and one point for a third place mention. Thus an overall sociometric score was obtained as well as a strictly leadership score and a strictly friendship score.

"Sent" answer ..... -2 points
"considerate," "C", answers ..... -2 points
"Antimoralistic," "A", answers ..... +2 points
"middle of the road," "MR", answers .... 0 points

The Sociometric Basis

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CHAPTER III

FORMATION OF CRITERIA AND ANALYSIS OF THE INSTRUMENT

Description of the Scores

The instrument constructed in the present study yielded two types of scores, "quality" scores and "bent" scores. The scores are exhibited in Table 1. A high "quality" score meant that the midshipman had rejected the "authoritarian" and "considerate" answers more often than his fellows to write in good leadership solutions as deemed by the military judges. Conversely a low "quality" score meant either that the midshipman was lead into accepting more "authoritarian" and "considerate" answers or that the leadership solutions he wrote were poor. The "quality" scores ran from 16 to 86, a range of 70 points. Their mean was 47.5; the standard deviation 16.19.

The "bent" scores ran from +29 to -26, a range of 55 points. Their mean was -1.3; the standard deviation 12.04. A high plus score indicated that the midshipman had chosen predominantly "structured" solutions. A large minus score indicated that he had chosen the "considerate" solution most often. As the scores, both plus and minus, neared zero it indicated that the midshipman was holding more of

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Table 1 - "Quality" Scores and Corresponding "Bent" Scores.

Rank	QUALITY Score	BENT Score
1	86	-16
2	84	- 4
3	80	0
4	77	- 9
5	66	+ 3
6	63	+ 6
7	58	0
8	56	-17
9	53	+10
9	53	-13
11	50	- 7
11	50	+ 5
11	50	- 6
14	49	+10
15	48	+10
15	48	- 3
17	46	+ 4
17	46	-12
17	46	-18
20	44	0
21	42	- 8
22	41	-14
22	41	+ 9
24	40	+ 9
25	39	+ 4
25	39	+ 2
27	38	+22
28	37	-26
29	35	-13
30	34	0
31	30	+29
31	30	- 5
33	28	+18
34	20	+ 4
35	16	-20
	M. = 47.5	M. = -1.3
	S.D. = 16.19	S.D. = 12.04

Table 1 - "Quality" scores and corresponding "Sent" scores.

Rank	QUALITY score	SENT score
1	48	-16
2	54	- 4
3	50	0
4	77	- 9
5	66	+ 3
6	63	+ 6
7	63	0
8	46	-17
9	35	+10
10	60	-13
11	50	- 7
12	50	+ 5
13	50	- 8
14	43	+10
15	48	+10
16	48	- 3
17	46	+ 4
18	46	-12
19	46	-18
20	44	0
21	42	- 8
22	41	-14
23	41	+ 9
24	40	+ 9
25	39	+ 4
26	39	+ 2
27	38	+22
28	37	-28
29	36	-13
30	34	0
31	30	+29
32	30	- 5
33	28	+18
34	20	+ 4
35	16	-20

$\bar{x}$. = 47.8 $\bar{x}$. = -1.5

s.D.= 16.19 s.D.= 12.04

a balance between extremes. An exact score of zero showed that he had chosen just as many "structured" solutions as "considerate" and thus his "bent" was "middle of the road" insofar as this test was concerned.

The "quality scores" correlated with the bent scores a minus .16 ($r = -.16$) and with the deviation of the "bent" scores from zero a minus .28 ($r = -.28$). Thus neither of the scores could be considered very closely related to the other. However, there is a tendency for those who deviated least from zero to have higher quality scores.

Reliability of the Instrument

Since it was apparent that the test measured a single ability, two Kuder-Richardson formulae were used to determine the reliability. Both formulae gave identical results

TABLE 2

Kuder-Richardson Formulae Used to Determine Reliability Coefficients

$$r = \frac{n}{n-1} \left(1 - \frac{\Sigma pq}{s^2} \right)$$

$$r = \frac{s^2 - \Sigma pq}{\Sigma \sqrt{pq} - \Sigma pq} \cdot \frac{\Sigma \sqrt{pq}}{s^2}$$

to two decimal places. The reliability of the quality scores equaled .62 ($r = .62$) and of the bent scores equaled .94 ($r = .94$). No attempt was made to purify test items

a balance between extremes. An exact score of zero showed that he had chosen just as many "structured" solutions as "unstructured" and thus his "best" was "middle of the road" insofar as this test was concerned.

The "quality scores" associated with the best scores a minus .16 ($r = -.16$) and with the deviation of the "best" scores from zero a minus .28 ($r = -.28$). Thus neither of the scores could be considered very closely related to the other. However, there is a tendency for those who deviated least from zero to have higher quality scores.

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other than submitting them to the military judges before the test was ever administered.

Establishment of the Criteria

It was decided early in the study that three basic criteria would be used to compare test scores. These were to be sociometric ratings by peers, ratings by superiors, and intelligence scores. At best these means used as criteria are weak. The sociometric ratings were dangerously established from overall impressions of peers. Thus the ever important "situation" and "group being lead" were left out, meaning that the raters were forced to generalize from traits, characteristics, and general impressions. It has already been noted that such an approach to leadership is hardly accurate. However, sociometric ratings have been proven to have great value in measures of leadership and must definitely be considered in the study of leadership where the need for any criteria is great. (23) Superior ratings because of their bias and often lack of adequate opportunities for observation have often fallen short of being acceptable criteria. Again, however, the need for criteria is great and it is imperative that criteria once decided upon must be used. The intelligence scores were used here more to see just how the scores did compare with

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intelligence, how much they were affected by it, and whether they proved to be of unique character, rather than as a criterion.

1. Sociometric Scores

The sociometric scores were obtained from a questionnaire as previously described and are listed in Table 3. They represented the summary impressions by the midshipmen of those of their own number who they felt were their best leaders and best friends. Some of the midshipmen were in their fourth year of school together. Others had not joined the group until the beginning of the third year but all had at least one and one-half years together in an N.R.O.T.C. unit including a summer cruise. The overall sociometric scores ranged from 0 to 189, but the median score was 17. Thus, four of the midshipmen dominating this scoring received a considerably larger number of votes as compared to those received by others in the group. This factor influenced the statistics considerably. By the very nature of the questionnaire these scores could be categorized into leadership and friendship subtotals. It was hypothesized beforehand that the "quality" scores from the test would correlate positively with the overall sociometric scores but more highly with the leadership subtotal of

the course but more highly with the leadership exhibited of that would correlate positively with the overall continuation postponed determined that the "quality" course from the leadership into laboratory and friendship substitute. It was by the influence the statistics conclusive. By the very nature of the questionnaire these scores could be categorized by those received by others in the group. This forced to those received a considerably larger number of votes on one-fifth. Then, four of the midshipmen questioning this course received a considerably higher number of votes on one-fifth. Thus, four of the midshipmen questioning this course received scores ranged from 6 to 1@, but the median score was 17.

U.T.O.M.C. unit including a summer cruise. The overall conditions had at least one and one-half years together in the planned the group until the beginning of the third year. Of the three quarter year of school together. Others had met during the summer and four of the midshipmen were in the unit and four friends. Some of the midshipmen were in the group to the point of their own number who they felt were their best

3. Questionnaire Scores

The questionnaire scores were obtained from a questionnaire on personality described and are listed in Table 3. They represented the summary impressions by the midshipmen of three of their own number who they felt were their best friends and best friends. Some of the midshipmen were in the

able 3 - Corresponding Sociometric Scores and Sub-scores.

OVERALL		LEADERSHIP		FRIENDSHIP	
Rank	Score	Rank	Score	Rank	Score
1	189	1	132	1	57
2	124	3	75	3	49
3	114	2	98	11	16
4	99	4	43	2	56
5	55	6	30	6	25
6	51	7	26	6	25
7	47	5	36	16	11
8	45	16	9	4	36
9	44	8	18	5	26
10	34	9	17	9	17
11	29	13	12	9	17
12	28	11	15	14	13
13	27	18	7	8	20
14	18	12	14	27	4
14	18	15	10	21	8
14	18	21	5	14	13
14	18	22	4	12	14
18	17	10	16	33	1
18	17	19	6	16	11
18	17	17	8	20	9
21	15	25	1	12	14
22	14	22	4	19	10
22	14	13	12	30	2
24	13	19	6	24	7
25	12	25	1	16	11
26	8	30	0	21	8
26	8	30	0	21	8
28	6	25	1	25	5
28	6	25	1	25	5
30	5	24	2	28	3
31	4	25	1	28	3
32	2	30	0	30	2
32	2	30	0	30	2
34	0	30	0	34	0
34	0	30	0	34	0
median = 17		mean = 17.4		mean = 14.5	
mean = 32		S.D. = 29.2		S.D. = 14.6	
S.D. = 40.29					

Table 3 - Corresponding sociometric scores and sub-scores.

OVERALL		LEADERSHIP		FRIENDSHIP	
Rank	Score	Rank	Score	Rank	Score
1	189	1	132	1	57
2	124	3	76	3	49
3	114	2	98	11	16
4	99	4	45	2	56
5	85	6	30	6	25
6	81	7	26	6	25
7	47	8	26	16	11
8	45	16	9	4	36
9	44	8	18	8	26
10	34	9	17	9	17
11	29	13	12	9	17
12	28	11	15	14	13
13	27	18	7	8	20
14	18	12	14	27	4
14	18	15	10	21	8
14	18	21	5	14	18
14	18	22	4	12	14
18	17	10	16	33	11
18	17	19	6	16	11
18	17	17	8	20	9
21	15	25	1	12	14
22	14	22	4	19	10
23	14	13	12	30	8
24	13	19	6	24	7
25	12	26	1	18	11
26	8	30	0	21	8
26	8	30	0	21	8
28	6	25	1	25	5
28	6	25	1	25	5
30	5	24	2	28	3
31	4	25	1	28	3
32	2	30	0	30	2
32	2	30	0	30	2
34	0	30	0	34	0
34	0	30	0	34	0
median = 17		mean = 17.4		mean = 14.5	
mean = 32		S.D. = 29.2		S.D. = 14.6	
S.D. = 40.29					

those scores. In spite of the inherent weakness of the criterion this would tend to be an indicator, if significant, that the instrument should be able to distinguish good leaders. It was also hypothesized that peers look upon a "considerate bent" as more desirable in a leader. One whom they vote for is one whom they like, one who is a "nice guy." Therefore, it would seem that the sociometric scores, particularly the friendship scores, should correlate with a "considerate" test bent.

2. Superior Ratings

The superior ratings were "leadership multiples" taken from the midshipmen's records. These multiples were obtained from observations by commissioned Naval Officers over a period of three and one-half years in all cases. The observations were recorded periodically during the scholastic terms and during three summer cruises. The ratings undoubtedly suffered from the usual bias. Observations during the school year were of a very limited nature and only of formalized stilted situations. Fortunately, greater weight was given the more versatile ratings from the summer cruises. The ratings on a four point scale were from 2.92 to 3.51 which represents a range of only .59 points. It was feared that the piling up of rating scores

those scores. In spite of the inherent weakness of the criterion this would tend to be an indicator, if significant, that the instrument should be able to distinguish good leaders. It was also hypothesized that peers look upon a "considerate boss" as more desirable in a leader. One whom they vote for is one whom they like, one who is a "nice guy." Therefore, it would seem that the sociometric scores, particularly the friendship scores, should correlate with a "considerate" test boss.

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over such a narrow space would limit the reliability of a criterion otherwise most promising because of its extensive observation period and variety of raters.

Correlation of the "quality" scores with the superiors' ratings would again, if significant, tend to be an indicator that the instrument was a worthwhile measure of leadership. It was expected that the superior ratings would correlate positively with the "initiating structure bent" of the test scores; this because of the natural inclination of the superior to rate highly a subordinate who structures his acts toward the accomplishment of the mission and enhancement of the unit.

3. Intelligence Test Scores

Scores from the Ohio State Psychological Examination were used as the intelligence criterion. While the Ohio State Psychological Examination is not strictly an intelligence test, it is generally agreed that scores obtained from it can be used to represent an intelligence factor. The scores for this sample ranged from a low of 18 to a high of 100; the mean being 75, the standard deviation 21.37. These scores indicate a group of above average intelligence but one which still has a good range. Although it should be expected that quality scores of most tests would correlate with intelligence it was hypothesized that

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this correlation would not be high in this case since the test was supposed to be measuring a pure quality not directly related to intelligence.

The scores of each individual on the leadership test used in the present study are compared with his scores on the criteria in Table 4.

Comparison of the Instrument with the Criteria

The intercorrelations of the "quality" and "bent" scores with the criteria are presented in Table 5.

The "quality" scores from the test exhibited a low but positive correlation with all the criteria. This was as hypothesized. Of particular significance was the correlation of +.30 with superior ratings. One noteworthy outcome was the high correlation of the "quality" scores with the friendship sociometric of +.27 as compared with the leadership sociometric of +.09.

The "bent" scores correlated negatively with the sociometric scores at a low but not insignificant level of -.24. This means that the sociometric scores correlated by that amount with a "considerate bent." This was just as hypothesized. The superior ratings correlated more towards the "initiating of structure" as hypothesized but still "considerate" at -.09. Correlation with the Ohio State

this correlation would not be high in this case since the data was supposed to be measuring a pure quality not distinctly related to intelligence.

The scores of each individual on the independently test in the present study are compared with his scores on the criteria in Table 4.

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The "best" scores correlated negatively with the academic scores at a low but not insignificant level of -.04. This means that the coefficients scores correlated by that amount with a "counterfeit test". This was just as expectated. The superior ratings correlated more positive the "initiating of structure" as hypothesized but still "counterfeits" at -.09. Correlation with the Cohn Study

Table 4 - Scores of Each Individual on the Test Compared with the Criteria.

QUALITY		BENT	OVERALL SOCIOMETRIC		SUPERIOR RATINGS		O.S.P.E.	
Rank	Score	Score	Rank	Score	Rank	Score	Rank	Score
1	86	-16	4	99	3	3.48	15	84
2	84	- 4	14	18	6	3.44	4	98
3	80	0	9	44	15	3.33	18	82
4	77	- 9	34	0	29	3.14	15	84
5	66	+ 3	1	189	12	3.35	29	52
6	63	+ 6	22	14	4	3.46	18	82
7	58	0	18	17	25	3.22	5	97
8	56	-17	26	8	27	3.18	28	55
9	53	+10	7	47	9	3.37	22	72
9	53	-13	34	0	35	2.92	31	33
11	50	- 7	14	18	2	3.49	-	-
11	50	+ 5	18	17	4	3.46	18	82
11	50	- 6	13	27	21	3.25	21	75
14	49	+10	25	12	24	3.23	10	88
15	48	+10	26	8	34	3.01	14	86
15	48	- 3	5	55	14	3.34	15	84
17	46	+ 4	6	51	17	3.30	13	87
17	46	-12	14	18	27	3.18	7	94
17	46	-18	14	18	22	3.24	29	52
20	44	0	21	15	10	3.36	25	67
21	42	- 8	8	45	16	3.31	8	89
22	41	-14	2	124	10	3.36	8	89
22	41	+ 9	11	29	8	3.39	24	70
24	40	+ 9	22	14	12	3.35	26	62
25	39	+ 4	10	34	22	3.24	2	99
25	39	+ 2	28	6	7	3.40	1	100
27	38	+22	30	5	33	3.04	33	32
28	37	-26	12	28	17	3.30	6	95
29	35	-13	24	13	32	3.06	34	18
30	34	0	32	2	31	3.10	31	33
31	30	+29	28	6	25	3.22	10	88
31	30	- 5	32	2	29	3.14	2	99
33	28	+18	31	4	17	3.30	22	72
34	20	+ 4	18	17	20	3.26	10	88
35	16	-20	3	114	1	3.51	26	62

M. = 47.5	M. = -1.3	M. = 32	M. = 3.28 M. = 75
S.D. = 16.19	S.D. = 12.04	S.D. = 40.29	S.D. = .142 S.D. = 21.37

Table 4 - Scores of Each Individual on the Test Compared with the Criteria.

QUALITY		SELF		OVERALL QUESTIONNAIRE		SUPERIOR RATINGS		C.S.P.E.	
Rank	Score	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	86	-16	4	98	3	5.48	15	84	1
2	84	- 4	14	18	5	5.44	4	98	1
3	80	0	9	44	10	5.35	18	82	1
4	77	- 2	53	0	20	5.14	11	84	1
5	76	+ 3	1	189	13	5.35	29	52	1
6	65	+ 6	22	14	4	5.46	18	82	1
7	58	0	18	17	25	5.22	5	97	1
8	55	-17	25	8	27	5.18	28	55	1
9	53	+10	7	47	9	5.37	22	72	1
9	53	-14	54	0	55	5.92	31	35	1
11	50	- 7	14	13	2	5.49	-	-	1
11	50	+ 5	14	17	4	5.46	18	82	1
11	50	- 6	13	27	21	5.25	21	75	1
14	49	+10	33	12	34	5.25	10	88	1
15	48	+10	20	6	34	5.01	14	86	1
15	48	- 3	5	55	14	5.54	15	84	1
17	46	+ 4	6	51	17	5.30	15	87	1
17	46	-12	14	18	29	5.18	7	94	1
17	46	-18	14	18	22	5.24	29	52	1
20	44	0	21	15	10	5.35	[illegible]	67	1
21	42	- 8	5	45	16	5.31	8	89	1
22	41	-14	2	124	10	5.36	8	89	1
22	41	+ 9	11	29	8	5.39	24	70	1
24	40	+ 9	22	14	12	5.35	26	62	1
25	39	+ 4	10	34	22	5.24	2	99	1
25	39	+ 2	28	8	7	5.40	1	100	1
27	38	+22	50	5	[illegible]	5.04	33	32	1
28	37	-26	12	28	17	5.30	6	95	1
29	35	-13	24	13	32	5.05	34	18	1
30	34	0	[illegible]	2	31	5.10	31	33	1
31	30	+29	29	8	25	5.22	10	88	1
31	30	- 8	32	2	29	5.14	3	99	1
33	28	+18	31	4	17	5.30	22	72	1
34	20	+ 4	17	17	20	5.26	10	88	1
35	16	-20	6	114	1	5.31	26	62	1

M. = 47.5 M. = -1.5 M. = 32 M. = 5.28 M. = 75
S.D. = 15.19 S.D. =12.04 S.D.= 40.29 S.D. = .142 S.D.= 21.57

TABLE 5

Intercorrelations of Quality and Bent Scores with the Criteria

	BENT SCORE	+ to -	DEVIATION FROM ZERO	FORMOZ	OVERALL SOCIOMETRIC	SOCIOMETRIC LEADERSHIP	FRIENDSHIP	SUPERIOR RATINGS	O.S.P.E.
QUALITY SCORE	-.16		-.28	+.16	+.09	+.27	+.30		+.16
BENT SCORE (+ to -)				-.24	-.21	-.25	-.06		+.19
DEVIATION FROM ZERO				-.01	+.01	-.05	-.16		-.42
OVERALL SOCIOMETRIC							+.44		+.00
LEADERSHIP						+.69	+.41		
FRIENDSHIP							+.39		
SUPERIOR RATINGS									+.42

Levels of Significance

.68 significant at 1 per cent level
.44 significant at 1 per cent level
.33 significant at 5 per cent level
.28 significant at 10 per cent level

TABLE 5

Intercorrelations of quality and best score with the criteria

	Quality score	Best score	O.S.P.S.	Supervisor ratings	Friendship	Leadership	Overall sociometric	Deviation from zero	Best score (+ to -)	Quality score
Quality score		-.16	-.28	+.16	+.09	+.27	+.30	+.16		
Best score (+ to -)				-.24	-.21	-.25	-.06	+.19		
Deviation from zero				-.01	+.02	-.05	-.16	-.42		
Overall sociometric						+.44	+.00			
Leadership						+.89	+.41			
Friendship							+.39			
Supervisor ratings								+.42		
O.S.P.S.										

Levels of significance

.58 significant at 1 per cent level
.44 significant at 1 per cent level
.33 significant at 5 per cent level
.28 significant at 10 per cent level

Psychological Examination showed that the more intelligent midshipmen tended slightly to "initiate structure" more. When the "bent" scores were regarded as a deviation from zero, that is when the midshipmen strayed either way from a balance between "structured" and "considerate" decisions, there was virtually no relationship with the sociometric scores. However, a -.16 correlation with superior ratings showed some tendency for those favored by the superiors to be balanced. A significant correlation of -.42 with the O.S.P.E. meant that there was a tendency for the more intelligent midshipmen to hold a better balance between their "structured" and "considerate" solutions.

The criteria held interesting relationships among themselves. The overall sociometric scores correlated with the superior ratings +.44 but zero with the O.S.P.E. Meanwhile the superior ratings correlated +.42 with the O.S.P.E. Thus the superiors tended to pick the intelligent men to give high ratings to while the peers made no such distinction.

Comparison upon Exclusion of Group Leader

One interesting departure from the expected and actual scores is worthy of note. The titular leader of the group, the midshipman battalion commander, made the lowest qual-

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<u>Comparison upon Evaluation of Group Leader</u>

One interesting departure from the expected and actual scores is worthy of note. The titular leader of the group, the midshipman battalion commander, made the lowest qual-

ity score of the group, 16, and had a very high considerate bent of -20. This midshipman was the number one man in superior ratings which upon checking with the man's training officer were supported as being thorough and reliable. He ranked third in overall sociometric, but the majority of these credits were in the leadership subtotal which may have been due to a bias occurring from his titular leadership and indicate he was not as well liked as a friend as he was respected as a leader. If this one case is set aside and the remaining 34 cases are compared with the criteria, significant differences occur.

TABLE 6

Intercorrelations with One Case (the titular leader of the group) Missing

	Overall	Sociometric	Leadership	Friendship	Superiors	Rating
Quality Score	+.31		+.29	+.29		+.41
Bent Score (Plus to minus)	-.16					+.01
Bent Score (Deviation from zero)	-.10					-.22

.29 significant at 10 per cent level
.41 significant at 2 per cent level

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he was respected as a leader. If this one case is not made
and the remaining 3 cases are compared with the subtests,
significant differences occur.

TABLE 6

Intercorrelations with One Case (the initial leader of the group) Missing

| | | |

It may be noted that the correlation of the quality score with the overall sociometric has almost doubled and is now significant at the 10 per cent level of confidence. Furthermore, the friendship sociometric subtotal is no longer prominently correlated with the quality scores but holds an equal place with leadership. Correlation with superior ratings has jumped from +.30 to +.41. The correlation spread between the plus to minus "bent" score and superior ratings remains about the same although both move in a positive (structured) direction. Correlations with test scores and the O.S.P.E. did not significantly change.

These last results after eliminating a case represent a selective rigging. They are presented only for interest, not as a way of supporting the hypothesis offered in the present study.

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CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

It has been hypothesized that a valid paper-pencil test of potential leadership ability could be constructed if it were based on a reliable definition of leadership and two of its probable dimensions, "initiating structure" and "consideration." Such a test has been attempted and introduced in the present study. The core around which each item in the test was built was the balance an examinee would hold in decision making between the two dimensions of "initiating structure" and "consideration" in varied situations. This balance was regarded as a critical incident of leadership. A sample was selected from the senior class of midshipmen at the N.R.O.T.C., Ohio State University. The test was administered to the sample and scored with the help of judges who were officers in the United States military establishment.

Two types of scores were obtained from the test, "quality" scores and "bent" scores. "Quality" scores reflected the ability of the midshipman to devise good leadership solutions to various situations requiring him to make a deci-

CHAPTER XV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

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Two types of scores were obtained from the test, "quality" scores and "best" scores. "Quality" scores reflected the ability of the midshipman to devise good leadership solutions to various situations requiring him to make a deci-

sion. The reliability of the "quality" scores was .62. The "quality" scores correlated .30 with superior ratings which is significant at the ten per cent level of confidence. The same "quality" scores correlated positively but low with both sociometric ratings and intelligence scores. The "bent" scores, if negative, reflected the inclination of the midshipman towards being "considerate." If positive, the "bent" scores reflected his inclination towards being "authoritarian." The reliability of the "bent" scores was .94. The "bent" scores correlated negatively with sociometric ratings at -.24 and with superior ratings at -.06. The "bent" scores correlated positively with intelligence at .19. The ability of the midshipman to hold a "middle of the road" balance between the "considerate" and "initiating structure" dimensions correlated .01 with sociometric ratings but positively with superior ratings at .16. This ability to hold a "middle of the road" balance correlated .42 with intelligence which is significant near the one per cent level of confidence.

The subject from the sample named as leader of the group by his superior officers was found to have ranked diametrically opposite on the test used in the present study from the rank he achieved on the criteria of leadership

The "quality" scores correlated .30 with superior ratings which is significant at the ten per cent level of confidence. The same "quality" scores correlated positively but low with both sociometric ratings and intelligence scores. The "best" scores, if negative, reflected the inclination of the midshipman towards being "considerate." If positive, the "best" scores reflected his inclination towards being "authoritarian." The reliability of the "best" scores was .94. The "best" scores correlated negatively with sociometric ratings at -.24 and with superior ratings at -.06. The "best" scores correlated positively with intelligence at .19. The ability of the midshipman to hold a "middle of the road" balance between the "considerate" and "initiating structure" dimensions correlated .01 with sociometric ratings but positively with superior ratings at .16. This ability to hold a "middle of the road" balance correlated .42 with intelligence which is significant near the one per cent level of confidence.

The subject from the sample named as leader of the group by his superior officers was found to have ranked diametrically opposite on the test used in the present study from the rank he achieved on the criteria of leadership

used. Whereas the "quality" scores before elimination of his case correlated only +.16 with sociometric ratings and +.30 with superior ratings, after elimination of his case the "quality" scores reached a correlation of +.31 with sociometric ratings and +.41 with superior ratings with significance at the ten per cent and two per cent levels of confidence respectively.

Conclusions

In the absence of either strong criteria or high correlations with existing criteria, it cannot be claimed that the proffered test has been proven to be either successful or valid. Neither can there be shown any facts in this study which tend to refute the original hypothesis that a test of leadership could be constructed around the proper balance a potential leader would hold in making decisions between "consideration" and "initiating structure." In fact, that proper balance exemplified by the "quality" scores correlated positively with all the criteria. The "quality" and "bent" scores could have correlated positively with the criteria as they did because of chance but nevertheless did occur in the direction expected and hoped for.

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effort which tend to relate the original hypothesis that a
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cause did occur in the direction expected and hoped for.

The +.30 correlation of the "quality" scores with the
superior ratings using all of the cases is significant

enough to indicate that the test shows a tendency to measure some of the same things that the criteria do. Since the sociometric scores and superior ratings are accepted criteria of leadership, it can be concluded that the test used in this study shows a tendency to measure that quality.*

Assumptions

1. This first draft of the test was a crude measure. Due to the unavailability of further samples, no item reliability check with its consequent purification of test items was attempted. If the test items were perfected and the revised test administered to an adequate number of cases more conclusive results might be obtained.

2. It has been found repeatedly in psychological testing that coefficients as low as .30 are of definite practical value. Occasionally, tests of low validity are promising for further development if they measure what no other test does. Since the test in the present study is one of the first attempts at leadership testing along these lines, the correlations found with the criteria may have high practical value. Thus the correlation of the "quality"

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* The +.31 and +.41 correlations of the "quality" scores with the overall sociometric scores and superior ratings, respectively, of the cases when the titular leader's scores were taken out also support this conclusion.

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* The +.31 and +.41 correlations of the "quality" scores with the overall sociometric scores and superior ratings, respectively, of the cases when the titular leader's scores were taken out also support this conclusion.

scores with superior ratings and sociometric ratings indicate that this approach to leadership testing may have potential use in the selection of leaders. As explained before, the criteria are weak, being loaded with generalized conceptions of an isolated quality that does not exist alone. If a better test is developed, as will be suggested, it should be compared with later success in an extended leadership capacity, a much more valid criterion.

3. On the basis of the one case included, this study indicates that test scores and leadership ratings of one who is already recognized as the leader of a group may be very erratic. Therefore their inclusion in a statistical study of leadership may be misleading. If a leadership aptitude test were to be used for selection it might be indicated that there should be no previously indicated leader of the group.

Recommendations

1. The present form of the leadership test should be expanded and improved obtaining many free response answers from individuals in one area such as N.R.O.T.C. midshipmen or Naval Officer candidates. A multiple choice test that would be easier to score should then be made from these responses.

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2. The Naval service should continue looking for an aptitude test of leadership ability for use as a tool in the selection of officers. As leadership studies progress the resulting knowledge about leadership may have implications for the construction of better tests. A test such as the one presented in the present study might be much more effective if tried out on candidates for officer training programs since such personnel are much more unselected a population than the sample used in the prosecution of this study.

3. The high reliability of the "bent scores of the leadership test ($r = .94$) indicate another possible use. A test of trainee's "bent" could indicate where each man tended to be too "considerate" or "authoritarian" in his thinking. Then leadership training could stress work on those areas of weakness.

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LEADERSHIP APTITUDE TEST

Instructions

After each of the situations given below are blanks for three answers. If you think either of the two printed answers would be a workable solution, check it. If you think both are definitely wrong and unworkable, write in the third space the best solution you can think of. If you do write in your own answer, make it short. Answer in the space provided. Complete sentences are not necessary.

Do not try to read anything extra, such as explanations, new facts, etc., into the situation or printed answers that is not there. Answer each question before going on to the next. Do not leave any questions blank.

FOR THE FOLLOWING QUESTIONS 1 THRU 7 YOU ARE AN OFFICER IN CHARGE OF AN ANTI-AIRCRAFT BATTERY ABOARD SHIP IN A COMBAT ZONE.

1. Your guns are well known for being able to maintain a high rate of fire. During a prolonged aerial battle should you:

_____ fire at a reduced rate and save your men.
_____ try and maintain a high rate at all costs.

Other:

2. All of a sudden while you are in your stateroom, a blast rocks the ship. "Battle stations" is sounded. Before you can get dressed and out the door, it is announced that a torpedo has exploded in the compartment where you know some of your men are billeted. Should you:

_____ go to your battle station.
_____ go to the aid of your men.

Other:

3. One of your men becomes immobile with fright in combat. Should you:

_____ try and get him sent back home.
_____ recommend him for court martial.

Other:

4. In a decision affecting the lives of your men should you:

_____ yourself, make whatever decision that will best accomplish the mission.
_____ consult your men and do the will of the majority.

Other:

5. You are O.O.D. one day. Everyone on the bridge says that the Executive Officer ordered the course set at 230 degrees. You are positive he set it at 280 degrees. Should you:

_____ set the course at 230.
_____ set the course at 280

Other:

6. Your ship is heading into port after 6 months at sea. Your men are expecting to get ashore on liberty. One day out, your ship receives orders to put back to sea. You should:

_____ simply give the necessary orders to your men and let them figure out what has happened.
_____ call your men together and tell them just what has happened.

Other:

7. While at an important gun drill with your men you must leave to make another appointment. Should you:

_____ make it known where you are going, whom you are going to see, and why.
_____ tell them nothing, just go.

Other:

FOR THE FOLLOWING QUESTIONS 8 THRU 35 YOU ARE A DIVISION OFFICER ABOARD SHIP IN PORT.

8. One of your men is being sent to Captain's mast for stealing food from the galley. He comes to you and tells you he did not do it. Should you:

_____ go to the Captain in his defense and try to protect him the best you can.
_____ let the case alone in the belief that justice will be done at mast.

Other:

9. Your men are already in training 8 hours a day and do extra work on cleaning details, when your skipper orders 2 hours extra a day be devoted to small arms training by the division officers. Should you:

_____ without explaining the immediate reason or giving the source of the order schedule this training at night.
_____ try to skimp a bit on the cleaning or other hours of instruction so as to leave the evenings free for the men.

Other:

10. An inspection is scheduled for Saturday morning. It calls for the men to display gear topside. The day arrives bitterly cold with a strong gale blowing everything about. Should you:

_____ hold the inspection as scheduled.
_____ call it off.

Other:

11. Your chief reports that several of your men have been reporting for duty just a few minutes late each morning. Should you:

_____ do nothing until it creates a more definite problem.
_____ take immediate disciplinary action.

Other:

12. You believe that several changes might be made in the location of gear in the bunk room to improve living conditions and cleaning and working efficiency. On sounding out your men you find they are strongly opposed to any changes. Should you:

_____ put your changes into effect immediately.
_____ make no changes.

Other:

13. You and some of your men are reporting ashore for a few days schooling. Should you spend the first few hours:

_____ seeing that your men receive the proper care, sleeping quarters, food, etc.
_____ preparing yourself for your school work.

Other:

14. For months your men have been required to send their laundry to the ship's service in group lots and have been having buttons torn off and holes ripped in clothing. Should you:

_____ offer to try and get an inexpensive rate at a civilian laundry for those who want it.
_____ make no change.

Other:

15. While on liberty you bump into one of your men who asks you to loan him $5 until he sees you again back at the ship. Should you:

_____ loan it to him if you have the money.
_____ refuse.

Other:

16. There is usually a long line of enlisted men at the cigarette counter in the Navy exchange. Should you:

_____ make it a practice to go to the head of the line.
_____ always get in line just like anyone else.

Other:

17. Should you:

_____ at every opportunity join in a group of your men telling "sea stories" and tell a few of your own.
_____ stay completely aloof from such a group and remain on your dignity.

Other:

18. Your commanding officer has just complimented your men on their fine showing at an inspection. However, there were some defects you noticed that he did not. Should you:

_____ get after your men about those defects in an attempt to make the next inspection a still better one.
_____ unqualifiedly add your compliments to those of the C.O.

Other:

19. Your unit is to be cut in strength. You are given the opportunity to suggest names of men for transfer. Should you suggest:

_____ only those men who are no good, inefficient, or troublemakers.
_____ all men who say they want to leave.

Other:

20. One of your men is reported to you for drunkeness and fighting. You know that two days previously he received word that his son had died. Should you:

_____ let the matter drop.
_____ discipline the man as you would any other man.

Other:

21. You have been having trouble with the discipline of your men. There have been numerous violations of minor regulations. Should you:

_____ make the punishment stronger if the rules are not obeyed.
_____ tolerate the violations for awhile until things are running smoothly again.

Other:

22. You have a man who appears hopeless. He is lazy, ignorant, and cannot be trusted to get any job done. Should you:

_____ force responsibility on him.
_____ keep him away from significant jobs.

Other:

23. You have just taken over a new division. Should you:

_____ take it easy on the men so they will be able to see you are their friend.
_____ bear down and show them you are really the boss.

Other:

24. For the routine work your unit has to do should you:

_____ make known the overall job to your men and leave it to them to see how it will be done.
_____ schedule each phase of the work in a precise plan.

Other:

25. A group of your lower ranking N.C.O.'s comes to you and tells you they can no longer work for your "chief", who they say is no good. You had not previously determined he was incompetant. Should you:

_____ try and get the "chief" transferred.
_____ tell the men they will have to get along with the "chief" or else.

Other:

26. One of your men enters your office in response to your summons. Should you have him state his business.

_____ while at the position of "attention" before you.
_____ while "at ease."

Other:

27. During a slack period that appears indefinite, your men have nothing to do. Should you:

_____ let them lie around and do nothing all day if they want to.
_____ make up some kind of "busy work" to keep them on the job.

Other:

28. During your training you have learned various methods of tracking planes and computing leads. Upon arrival on shipboard you find only one limited method is used which all your men are accustomed to and do well. Should you:

_____ indoctrinate the other methods you have learned.
_____ use the present method since your men would probably resent and resist your intrusion.

Other:

29. You get word from your C.O. that the Admiral has caught one of your good men out of uniform. Your C.O. says that it is up to you to investigate and recommend punishment. The man admits the offense. Should you:

_____ recommend no punishment.
_____ recommend a court-martial.

Other:

30. A recruit tries several times to get a line around a bit without success. Should you:

_____ jump in and secure it yourself.
_____ let him keep trying as long as he wants to.

Other:

31. Four of your men have the color detail on the July 4th holiday. It is their first time in such an assignment. Should you:

_____ rehearse their duties with them yourself until they feel they know them well enough.
_____ loan them the manual which explains everything very well.

Other:

32. One of your men who is perfectly capable does a job incorrectly. You order him to do it over. He refuses. You should:

_____ discipline him.
_____ have someone else do the job.

Other:

33. You hold your first inspection in a new command and find the area dirty. Should you:

_____ order the men up early every morning for a week to clean the area.
_____ wait and see how the area looks at the next inspection.

Other:

34. One of your men's original ideas is adopted as standard procedure in the command. No one knows where it came from except you. Should you:

_____ see that the man is given some sort of material reward and plenty of publicity.
_____ the fact that the command is helped is enough, it makes no difference if credit is given or not.

Other:

35. You find two of your men fighting. Should you:
_____ discipline them both.
_____ stop the fight and arbitrate their argument for them.

Other:

FOR THE FOLLOWING QUESTIONS 36 THRU 42 YOU ARE IN COMMAND OF A MARINE INFANTRY PLATOON IN COMBAT.

36. The infantry manual says, "The correct manner to advance against an enemy ashore is to keep low, seeking cover and concealment." But your men who have been in combat with you for some time repeatedly exposing their lives have become hardened to danger and while advancing always walk upright until fired on. Should you:
_____ permit this practise.
_____ insist on doing it exactly "by the book."

Other:

37. Your attacking party faces a difficult advance over open ground into the face of heavy enemy fire. Should you:
_____ attack and capture the ground knowing full well you will suffer a high rate of casualties.
_____ ask permission to hold up the advance where you are.

Other:

38. As a general rule would you:
_____ direct tactics from your C.P. since the primary role of a troop leader is to solve the tactical problem.
_____ lead your men personally, placing yourself in the front.

Other:

39. You are sure your men are saving souvenirs from the battle field contrary to regulations requiring that they be turned in to intelligence. Should you:
_____ Search each man and confiscate all souvenirs.
_____ remind them of the regulations again.

Other:

40. No one has volunteered to go on a dangerous one man mission. Should you:

_____ go yourself.
_____ order one of your men to go.

Other:

41. The entire command is digging two man foxholes for defensive positions. Everyone has a buddy to team with but Private Sad Sack. Should you:

_____ team up with him yourself.
_____ order him to dig alone.

Other:

42. You are second in command of the company. The situation is bad but not yet critical. Your C.O. cannot decide what to do. Should you:

_____ take over the command.
_____ try and cheer him up.

Other:

THE REMAINING QUESTIONS REPRESENT MISCELLANEOUS SITUATIONS ABOARD SHIP.

43. You are given a beer ration normally saved for the officers aboard your ship. You hear the men grumbling that as usual the officers get all the breaks. Should you:

_____ turn the beer over to your men.
_____ drink what you want and save the rest for later.

Other:

44. One of your men who usually does a good job has failed to perform an assigned duty. This has resulted in your group receiving an unnecessary criticism. Should you:

_____ Call the man in for an immediate reprimand.
_____ comfort the man in a friendly chat realizing it probably hurt him as much as it did you.

Other:

45. Your unit has a lot of work to do and a deadline to meet. Should you:

_____ tell the men about the deadline once and then rely on their spirit of cooperation to meet it.

_____ keep reminding your men of the deadline to continually spur them on.

Other:

SOCIOMETRIC RATINGS

Consider all the men in your senior class of Naval R.O.T.C. Midshipmen in answering the following questions. List in order of your preference the three names which best fit the bill. Do not leave any blank.

1. If you were to be given command of a small ship, whom would you pick as your Executive officer?

   1.

   2.

   3.

2. If your son were going to sea as an enlisted man, who would you most like to see be his immediate commanding officer?

   1.

   2.

   3.

3. Who do you think is most deserving to be your Midshipman Battalion Commander, 4 striper?

   1.

   2.

   3.

4. If you were able to pick whom you would be stationed with at your first duty station, whom would you pick?

   1.

   2.

   3.

5. Whom would you most like to take a trip with?

   1.

   2.

   3.

6. Who do you think is the "nicest guy" in the class?

   1.

   2.

   3.

APPENDIX 5

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